

SEQUENCE LISTING

<110> FUKUCHI, NAOYUKI  
KITO, MORIKAZU  
KAYAHARA, TAKASHI  
FUTAKI, FUMIE  
ISHIKAWA, KOHKI  
SUZUKI, EIICHIRO  
GONDOK, KEIKO  
SHIMBA, NOBUHISA  
YAMADA, NAOYUKI

<120> PROTEIN HAVING ANTITHROMBOTIC ACTIVITY AND METHOD FOR PRODUCING THE SAME

<130> 214760US0

<140> US 09/969,763  
<141> 2001-10-04

<150> JP 2000-305279  
<151> 2000-10-04

<160> 50

<170> PatentIn version 3.1

<210> 1  
<211> 126  
<212> PRT  
<213> Crotallus horridus

<400> 1

Asp Leu Glu Cys Pro Ser Gly Trp Ser Ser Thr Asp Arg Tyr Cys Tyr  
1 5 10 15

Lys Pro Phe Lys Gln Glu Met Thr Trp Ala Ser Ala Glu Arg Phe Cys  
20 25 30

Ser Glu Gln Ala Lys Gly Gly His Leu Leu Ser Val Glu Thr Ala Leu  
35 40 45

Glu Ala Ser Phe Val Asp Asn Val Leu Tyr Ala Asn Lys Glu Tyr Leu  
50 55 60

Thr Arg Tyr Ile Trp Ile Gly Leu Arg Val Gln Asn Lys Gly Gln Pro  
65 70 75 80

Cys Ser Ser Ile Ser Tyr Glu Asn Leu Val Asp Pro Phe Glu Cys Phe  
85 90 95

Met Val Ser Arg Asp Thr Arg Leu Arg Glu Trp Phe Lys Val Asp Cys  
100 105 110

Glu Gln Gln His Ser Phe Ile Cys Lys Phe Thr Arg Pro Arg  
115 120 125

<210> 2  
<211> 690  
<212> DNA  
<213> Crotalus harridus

<220>  
<221> CDS  
<222> (66)...(512)  
<223>

<400> 2  
ctgagcagac ttgctacctg tggaggccga ggaacagtgc tctctgcagg gaaggaaaga 60  
acgcc atg ggg cga ttc atc ttc gtg agc ttc aac ttg ctg gtc gtg ttc 110  
Met Gly Arg Phe Ile Phe Val Ser Phe Asn Leu Leu Val Val Phe  
1 5 10 15  
ctc tcc cta agt gga act cta gct gat ttg gaa tgt ccc tcc ggt tgg 158  
Leu Ser Leu Ser Gly Thr Leu Ala Asp Leu Glu Cys Pro Ser Gly Trp  
20 25 30  
tct tcc tat gat cgg tat tgc tac aag ccc ttc aaa caa gag atg acc 206  
Ser Ser Tyr Asp Arg Tyr Cys Tyr Lys Pro Phe Lys Gln Glu Met Thr  
35 40 45  
tgg gcc gat gca gag agg ttc tgc tcg gag cag gcg aag ggc ggg cat 254  
Trp Ala Asp Ala Glu Arg Phe Cys Ser Glu Gln Ala Lys Gly Gly His  
50 55 60  
ctc ctc tct gtc gaa acc gcc cta gaa gca tcc ttt gtg gac aat gtg 302  
Leu Leu Ser Val Glu Thr Ala Leu Glu Ala Ser Phe Val Asp Asn Val  
65 70 75  
ctc tat gcg aac aaa gag tac ctc aca cgt tat atc tgg att gga ctg 350  
Leu Tyr Ala Asn Lys Glu Tyr Leu Thr Arg Tyr Ile Trp Ile Gly Leu  
80 85 90 95  
agg gtt caa aac aaa gga cag cca tgc tcc agc atc agt tat gag aac 398  
Arg Val Gln Asn Lys Gly Gln Pro Cys Ser Ser Ile Ser Tyr Glu Asn  
100 105 110  
ctg gtt gac cca ttt gaa tgt ttt atg gtg agc aga gac aca agg ctt 446  
Leu Val Asp Pro Phe Glu Cys Phe Met Val Ser Arg Asp Thr Arg Leu  
115 120 125  
cgt gag tgg ttt aaa gtt gac tgt gaa caa caa cat tct ttc ata tgc 494  
Arg Glu Trp Phe Lys Val Asp Cys Glu Gln Gln His Ser Phe Ile Cys  
130 135 140

aag ttc acg cga cca cgt taagatccgg ctgtgtgaag tctggagaag	542
Lys Phe Thr Arg Pro Arg	
145	
caaggaagcc ccccacctct ccccacccccc cacctccgc aatctctgct cttccccctt	602
tgctcagtgg atgctctctg tagccggatc tgggtttct gctccagatg ggtcagaaga	662
tccaataaaat tctgcctacc caaaaaaaaa	690
<210> 3	
<211> 149	
<212> PRT	
<213> Crotalus harridus	
<400> 3	
Met Gly Arg Phe Ile Phe Val Ser Phe Asn Leu Leu Val Val Phe Leu	
1 5 10 15	
Ser Leu Ser Gly Thr Leu Ala Asp Leu Glu Cys Pro Ser Gly Trp Ser	
20 25 30	
Ser Tyr Asp Arg Tyr Cys Tyr Lys Pro Phe Lys Gln Met Thr Trp	
35 40 45	
Ala Asp Ala Glu Arg Phe Cys Ser Glu Gln Ala Lys Gly Gly His Leu	
50 55 60	
Leu Ser Val Glu Thr Ala Leu Glu Ala Ser Phe Val Asp Asn Val Leu	
65 70 75 80	
Tyr Ala Asn Lys Glu Tyr Leu Thr Arg Tyr Ile Trp Ile Gly Leu Arg	
85 90 95	
Val Gln Asn Lys Gly Gln Pro Cys Ser Ser Ile Ser Tyr Glu Asn Leu	
100 105 110	
Val Asp Pro Phe Glu Cys Phe Met Val Ser Arg Asp Thr Arg Leu Arg	
115 120 125	
Glu Trp Phe Lys Val Asp Cys Glu Gln Gln His Ser Phe Ile Cys Lys	
130 135 140	
Phe Thr Arg Pro Arg	
145	

<210> 4  
<211> 30  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 4  
attggatcca tggatttgg a tgc cctcc

30

<210> 5  
<211> 26  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 5  
ggacagccag cctccagcat c agtta

26

<210> 6  
<211> 30  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 6  
aataagctta acgtggtcgc gtgaacttgc

30

<210> 7  
<211> 26  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 7  
gatgctggag gctggctgtc ctttgt

26

<210> 8  
<211> 54  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 8  
tatatatctgga ttggactgag gggcggtgga ggtgaatgtt ttatggtagag caga

54

<210> 9  
<211> 54  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 9  
tctgctcacc ataaaacatt cacctccacc gcccctcagt ccaatccaga tata

54

<210> 10  
<211> 110  
<212> PRT  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC PEPTIDE

<400> 10

Asp Leu Glu Cys Pro Ser Gly Trp Ser Ser Tyr Ser Arg Tyr Cys Tyr  
1 5 10 15

Lys Pro Phe Lys Gln Glu Met Thr Tyr Ala Asp Ala Glu Arg Phe Cys  
20 25 30

Ser Glu Gln Ala Lys Gly Gly His Leu Leu Ser Val Glu Thr Ala Leu  
35 40 45

Glu Ala Ser Phe Val Asp Asn Val Leu Tyr Ala Asn Lys Glu Tyr Leu  
50 55 60

Thr Arg Tyr Ile Trp Ile Gly Leu Arg Phe Phe Phe Glu Cys Phe  
65 70 75 80

Met Val Ser Arg Asp Thr Arg Leu Arg Glu Trp Phe Lys Val Asp Cys  
85 90 95

Glu Gln Gln His Ser Phe Ile Cys Lys Phe Thr Arg Pro Arg  
100 105 110

<210> 11  
<211> 24

<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 11  
caagcccttc gcacaagaga tgac

24

<210> 12  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 12  
gtcatctctt gtgcgaaggg ctta

24

<210> 13  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 13  
gcatttttg tggccaaatg gctc

24

<210> 14  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 14  
gagcacattg gcccacaaagg atgc

24

<210> 15  
<211> 25  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 15  
gacaatgtgc tcgctgcgaa caaag

25

<210> 16  
<211> 25  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 16  
ctttgttcgc agcgagcacá ttgtc

25

<210> 17  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 17  
ctatgcgaac gcagagtaacc tcac

24

<210> 18  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 18  
gtgaggtaact ctgcgttcgc atag

24

<210> 19  
<211> 23  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 19  
gcgaacaaag cgtacacctac acg

23

<210> 20  
<211> 23  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 20  
cgtgtgaggt acgctttgtt cgcc

23

<210> 21  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 21  
gcgaacaaag aggcacctcac acgt

24

<210> 22  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 22  
acgtgtgagg gcctctttgt tcgc

24

<210> 23  
<211> 22  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 23  
gtacctcaca gcttatatct gg

22

<210> 24  
<211> 22  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 24  
ccagatataa gctgtgaggt ac

22

<210> 25  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 25  
cctcacacgt gctatctgga ttgg 24

<210> 26  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 26  
ccaatccaga tagcacgtgt gagg 24

<210> 27  
<211> 22  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 27  
atggtgagcg cagacacaag gc 22

<210> 28  
<211> 22  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 28  
gccttgtgtc tgcgctcacc at 22

<210> 29  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 29  
ggtgagcaga gccacaaggc ttcg 24

<210> 30  
<211> 24

<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 30  
cgaaggccttg tggctctgct cacc

24

<210> 31  
<211> 23  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 31  
agagacacag cgcttcgtga ggc

23

<210> 32  
<211> 23  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 32  
ctcacgaagc gctgtgtctc tgc

23

<210> 33  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 33  
gaacaaggct tgctgagtgg tttaaag

27

<210> 34  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 34  
ctttaaacca ctcagcaagc cttgttc

27

<210> 35  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 35  
caaggcttcg tgcgtggttt aaagttg

27

<210> 36  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 36  
caactttaaa ccacgcacga agccttg

27

<210> 37  
<211> 26  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 37  
cttcgtgagt gggctaaagt tgactg

26

<210> 38  
<211> 26  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 38  
cagtcaactt tagcccactc acgaag

26

<210> 39  
<211> 41  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 39  
ggtgagcaga aacacaaggc ttctgtcgtg gttttaaagtt g 41

<210> 40  
<211> 41  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 40  
caactttaaa ccactgacga agccttgtgt ttctgctcac c 41

<210> 41  
<211> 41  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 41  
ggtgagcaga gccacacaaggc ttctgtcggtg gttttaaagtt g 41

<210> 42  
<211> 41  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 42  
caactttaaa ccacgcacga agccttgtgg ctctgctcac c 41

<210> 43  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 43  
gcatcctttg tgaacaatgt gctc 24

<210> 44  
<211> 24  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 44  
gagcacattg ttcacaaagg atgc

24

<210> 45  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA  
  
<400> 45  
caaggattcg tcagtggttt aaagttg

27

<210> 46  
<211> 27  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA  
  
<400> 46  
caactttaaa ccactgacga agcattg

27

<210> 47  
<211> 25  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA  
  
<400> 47  
ggattggact gaggtgcggg ggagg

25

<210> 48  
<211> 25  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA  
  
<400> 48  
cctccaccgc acctcagtc aatcc

25

<210> 49  
<211> 23

<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 49  
ggacagccag catccagcat cag

23

<210> 50  
<211> 23  
<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> SYNTHETIC DNA

<400> 50  
ctgatgctgg atgctggctg tcc

23